

Claims

Sub
a1 1. A magnetic induction time-multiplexed two-way short-range wireless communications system, comprising:

a first portable unit for receiving first unit input signals and for providing first unit output signals, the first portable unit including a first unit transducer system for generating a first inductive field based upon the first unit input signals during a first time slot and for converting a second inductive field into the first unit output signals during a second time slot; and

a second portable unit for receiving second unit input signals and for providing second unit output signals, the second portable unit including a second unit transducer system for generating the second inductive field based upon the second unit input signals during the second time slot and for converting the first inductive field into the second unit output signals during the first time slot.

2. The system of claim 1 wherein the second unit transducer system comprises a single transducer.

3. The system of claim 2 wherein the single transducer comprises a rod antenna.

4. The system of claim 1 wherein the first unit transducer system comprises a plurality of transducers.

Sub
a2 5. The system of claim 4 wherein the plurality of transducers comprises an array of rod antennas.

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6. The system of claim 4 wherein the plurality of transducers comprises three rod antennas arranged orthogonally with respect to each other.

7. A method for magnetic induction time-multiplexed two-way short-range wireless communications, comprising:

during a first predetermined period of time, generating from a first portable unit with a first unit transducer system a first inductive field and receiving the first inductive field at a second portable unit with a second unit transducer system; and

during a second predetermined period of time, generating from the second portable unit with the second unit transducer system a second inductive field and receiving the second inductive field at the first portable unit with the first unit transducer system.

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